PRIMARY RESEARCH

Association of Socio-demographic Factors and Likelihood of Depression with Family Function Among Community – Dwelling Elderly

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Background and Objective: A positive family functionality is a significant factor to a good quality of life in the elderly. This study sought to determine the factors that contribute to family dysfunction among community-dwelling older persons.

Methods: A cross-sectional study was done among community-dwelling elderly ages 60 years old and above through the outpatient department of a tertiary government hospital. A researcher-assisted interview was done to gather socio-demographic factors such as age, sex, family type, and, GDS-S score, and family APGAR. Multiple linear regression analysis was done to determine the association of the said socio-demographic factors and likelihood of depression through GDS-S with family function through family APGAR.

Results: Among the 309 respondents, the average age of respondents was 69 years(SD=6.53), with female predominance of 61.8%, and a higher frequency of older persons belonging to an extended family. The mean GDS-S score is 1.69(SD=1.83), with a frequency of 13.9%. A very minimal percentage of 8.06% (25, N=309) showed to exhibit family dysfunction. Regression studies revealed association of advancing age, and female sex with family dysfunction. The type of family, and GDS-S are not significantly associated with family dysfunction.

Conclusion: Advancing age and female sex are associated with family dysfunction. There is no specific family type that is significantly associated with family dysfunction. Likelihood of depression does not necessarily imply family dysfunction in an elderly.

Key words: Elderly, older persons, socio-demographic factors, GDS-S, family APGAR

Introduction

Background

A family in later life is the stage that older adults cope with physiological deterioration that will lead to struggle of chronic illnesses, decrease in the social circles, loss of loved ones, and even thoughts of their own death. A positive family functionality is a significant factor to a good quality of life in the elderly. This is also true to among patients with chronic illness in the general population. Depression in the elderly is a rising public health concern, and it is not part of the natural process

Depression in the Elderly

In a Filipino population in the Philippines, 26.5% of community-dwelling elderly showed symptoms suggestive of depression using the GDS—S.³ In a population of Filipino community-dwelling migrants in the United States, a lower level of depression was seen. The same study concluded that the Filipino elderly are generally content and have happy aging, which is attributed to strong family support. A study concluded that a lower level of depression was seen among respondents with high educational attainment, higher income, and better self-reported health status.⁴ Older persons who are females are

of aging. This can have a negative impact in the family functionality. Elderly with chronic illness which show signs of depression have high

medical cost due to frequent doctor visits and hospital admissions.²

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more likely to have depressive symptoms. 5.6.7 In addition, older persons who live with a dysfunctional family are more likely to have 5.36 times the risk of showing depressive symptoms than those living with families whose functioning is good. Prolonged hospital stay is independently associated with depressive symptoms in the same population. A study on general Filipino population, anxiety and stress were associated with older age and lower physical and mental quality of life. However, the ages of the studied population ranged from 19 to 49 years old. In a Brazilian study, 77.2% of elderly persons that had clinical depression also had dysfunctional families as identified using the family APGAR assessment tool. 6

Family and Social Circles in the Later Stage of Life

In the Philippines, co-resident grandparents are fairly common. They take on active participation in the family, such as child rearing. Widowhood, an elderly person's relationship, and defined roles in the family are identified factors to an old person's connectedness. In Asia, most particularly in the Philippines, adopting a widowed parent is a usual practice. All these changes can add stress to the adult child who assumes the responsibility of taking care of an aging parent.

Elderly persons across all age and sex groups who were living with their families were found to be generally satisfied with their family life using the family APGAR tool.⁵ However, it was accounted that women face a higher risk of self—perceived severe family dysfunction, which the study notes as attributed to the nature of women who are emotional and attached. ^{11,12} In a study in Portugal, it was reported that 44.6% of families that are dysfunctional have family members with the age range of 65-74 years old. Moreover, it showed a higher rate of 66.7% family dysfunction among people aged 75 to 84 years old. ¹³ Therefore, families with older family members are likely to show family dysfunction.

Older persons with advanced age and who are community-dwelling are commonly found to be living with one of their married adult children, thus they belong to an extended family.^{4,5,10} This is true in most parts of Asia including the Philippines. Very few older adults are institutionalized to either a government-run or a private home care facility for the elderly. The demands and pressure that are being carried by the family with older persons are challenging. Advanced age entails a sense of belonging in an extended family. Caregivers of the older persons in extended families may have difficulty in their life balance, which could result in family dysfunction. ^{14,15,16}

Available research articles mostly focus on the institutionalized elderly. Few studies investigate factors that contribute to family dysfunction of the community — dwelling elderly. There is a greater number of community — dwelling elderly than the institutionalized elderly. Findings of this study will help primary care physicians identify red flags for family dysfunction. Identification of a potentially dysfunctional family will encourage primary care physicians to recommend early family interventions that will improve and address the family functionality. These family interventions will not only help the index patient, it will also increase the chances of improving family functionality and therefore giving a higher chance for a family to live a good quality of life.

The objective of this study was to know the association of sociodemographic factors and likelihood of depression with family function among community-dwelling elderly. This study specifically aimed to determine the socio-demographic characteristics of the elderly such as: age, sex, type of family; to determine the frequency of the elderly with symptoms suggestive of depression through GDS-S; to determine the family function of the elderly through family APGAR; and, to determine the association of socio-demographic factors and likelihood of elderly depression with family function.

METHODS

Study Design

A cross-sectional design was used in this study. This study was a one-time contact only through telemedicine.

Settings

The population identified for the study was from the patients who sought consultation at the outpatient department of a tertiary government hospital. Patients aged 60 years old and above and who were triaged to the Family and Community Department were invited to participate in the study. The tertiary government hospital, which has a 600-bed capacity, is located in Tagum City, Davao del Norte, Philippines. This institution also provides outpatient services for the people of Davao Region and CARAGA Region. Recruitment of respondents started on July 2020 and data collection was completed on December 2020. Recruitment was done as potential respondents reached out through a virtual platform for consultation.

Subjects

Elderly persons aged 60 years old and above who sought to have consultation with the Family and Community Medicine Department outpatient service through a virtual appointment were considered as respondents of the study. Elderly persons who lived with their family were included as prospect respondents. The elderly should not have intellectual incapacity. A family member should be present during the consultation and should be related to the elderly up to second degree of consanguinity or by affinity. Moreover, they must be a co-resident of the elderly in the same household for at least six months. Elderly patients who were living in nursing homes or homes for the aged were excluded from the study. Elderly persons who were living alone or had hearing impairment were also excluded from the study. The family members who had intellectual incapacity were excluded from the study as well. Elderly patients who were living in nursing homes were excluded because they were classified as institutionalized elderly. This study was exclusive for community-dwelling elderly persons. Candidate elderly participants with hearing impairment were excluded to ensure the accuracy of data gathering. A candidate elderly respondent with a family member (co-resident of the household they are living in) who had intellectual incapacity at the time of the interview was excluded due to a lack of ability to answer questions in the study. Purposive sampling was employed. All patients who reached out to DRMC OPD Virtual Consultation that met all the inclusion criteria with none of the exclusion criteria were recruited by inviting them to participate in the study. A recorded verbal consent was obtained from the elderly respondent and the accompanying family member who was present during the teleconsultation. In the recorded verbal consent, their names were stated and verbally declared that they consent to willingly participate in the study. This study was a one-time encounter. No follow-up was done.

Variables and Data Collection

A socio-demographic data questionnaire was used to collect sociodemographic information such as age, sex, and type of family. These data were obtained during phone call consultation. Therefore, this was a researcher-assisted data gathering. Geriatric Depression Scale-Short Form (GDS-5) was used to identify an elderly person's likelihood of depression. This tool is useful in the detection of depression across a culture-specific population.¹³ In the same study, its validity and reliability were significantly the same as the standardized structured clinical interview of DSM. It had a specificity and sensitivity as high as 75% and 80.5%, respectively. GDS-S has 15 items that are answerable with either a "Yes" or a "No". Out of the 15 items, there are five that are written as positive statements (Items 1, 5, 7, 11, and 13). A "No" answer to these 5 items is scored 1 point each. The rest of the items are negative statement, where a "Yes" answer is recorded as one point each. A total score of equal or greater than five (score \geq 5) is suggestive of depression.^{8,30} This study used the Bisaya translation of the GDS-S. This was done by direct forward translation, followed by expert panel context per context back-translation, and then field expert translation. Pre-testing was done afterward. Four rounds of pre-testing were done before the gathering of data commenced. Each pre-testing had 30 community-dwelling elderly respondents who were volunteers. The first round of pre-testing was self-administered, where almost all respondents left three items unanswered (Items 5, 7, and 8). Items with the statement containing the word "often" were questioned as to how often was often. The concern was brought to the field expert, who then addressed it by bringing back the translation to the expert panel. Translation of the three items was studied by the expert panel and retranslated. On the second round of pre-testing, 30 elderly volunteers were given the questionnaires and answered the items of the questionnaires, which were self-administered. About 76% (23/30) of the respondents answered all the items, and the rest still left items 5, 7, and 8 blank. About 17% (5/30) of the respondents still asked about the items with the term "often." The rest answered the mentioned items without asking. The second round of concern was brought to the field expert with the suggestion of administering the questionnaires through a personal interview to achieve the goal of each item. A further literature search was recommended to look for the meaning of the term "often" to address the vagueness of its meaning. According to Blockish, et al. (2012), the term "often" refers to a frequency of about 70% of the time.¹⁷ In effect, it has been decided that the items with the term "often" were stated with a qualifier, i.e. respondents were asked if they feel such emotions five (5) days out of seven (7) days in a week. This was done through face-to-face contact prior to the COVID-19 pandemic at the tertiary government hospital. In the third round of testing, another set of 30 elderly respondents answered all items of the questionnaire through a personal interview. This was done due to the need for qualifiers in some items. The gathering of data was in the form of an interview, which was done by the researcher. All items were easily understood and respondents gave their answers with ease. In this study, data gathered through this tool was researcher-assisted. Due to the COVID-19 global pandemic, face-to-face interviews were discouraged, most especially with the elderly population. A phone call interview was decided to avoid compromising the health of the study's respondents. The fourth and last pre-testing was done where phone call interviews were conducted with 30 elderly persons. All items were answered by respondents easily. Family APGAR is a routine tool used by family physicians around the world since its introduction by Smilkstein in 1978. 15 The most recent study of family APGAR's psychometric among the elderly was done in Brazil in 2014, which concluded that family APGAR is reliable and valid for population screening of family function.³⁶ Due to the limitations brought about by strict health measures due to COVID-19 global pandemic, the data gathered through this tool was researcher-assisted. In this manner, both the respondents and the researcher did not face the risk of contracting COVID-19 in the process of gathering the data.

Statistical Analysis

Descriptive statistics of the socio-demographic factors were done. As continuous data, mean \pm standard deviation (SD) of age was used. For non-continuous data such as sex and type of family, percentages and frequency were used. Mean \pm SD and frequency (%) of GDS-S scores, family APGAR scores were done. Multiple Linear Regression analysis was employed to calculate the odds at 95% confidence intervals (OR, 95% CI) of family dysfunction for selected socio-demographic factors and the elderly's likelihood of depression. The sample size computation for this cross-sectional study was based on a computation to proportion based on the actual number of patients of DRMC OPD Family and Community Medicine Department from January 2020 to June 2022. Estimation was based on the assumption that the estimated number of persons aged 60 and above in the study site was 1,499 with a 95% confidence interval, 5% margin of error, and a likely proportion of 50%. A sample size of 306 respondents would have 90% power of rejecting the null hypothesis if the alternative was held. EPI Info version 7.2.2.6 was utilized to perform the descriptive statistics to process the data.

Ethical Considerations

A voluntary participation was applied in the recruitment of respondents. Potential respondents who refused to participate in the study were not forced to be enrolled in the study. During the phone call consultation with elderly patients, candidates were invited to participate in the study. The content of the informed consent was thoroughly explained to the respondents. They were verbally asked if they agree to give consent to participate in the study. It was also explained to them that the conversation during the phone call was recorded to document

their agreement to participate in the said study. Files of the recorded verbal consent were assigned a code to employ anonymity. The code was written on the certificate of consent. It was emphasized to them that the call would take time and that they needed the presence of a family member who was a co-resident of their household that fit the inclusion criteria and had none of the exclusion criteria. The participating coresident of the elderly was also asked to give verbal consent to agree to participate in the study. The participating co-residents of the elderly respondents were also informed about the recording of the phone call conversation and its importance in the documentation of their verbal consent. Phone call interviews with the patients were done in a quiet room. No other persons heard the conversation between the researcher and the respondents. Prior to the conduct of the research, the researcher sought approval from the Davao Regional Medical Center – Research Ethics Committee. Once approved, the researcher sought a request form for approval from the outpatient department of the participating tertiary government hospital. All data gathered were submitted to the DRMC Research Unit for safekeeping.

RESULTS

A total of 330 respondents were recruited, and 21 were dropped and excluded from the study. There were six different reasons why respondents were dropped from the study. There were eight respondents who could not hear very well, in effect, they were not able to answer questions properly because of their hearing limitations. Six candidate respondents were living alone and four potential respondents had family members that were 18 years old and below. In addition, one respondent was not able to proceed because of the inability of the family member to talk due to a cerebrovascular accident. Another candidate respondent was dropped due to dysarthria. Moreover, one candidate respondent was excluded from the population because the family member had only lived with the elderly for one month. There were 309 respondents who fulfilled the inclusion criteria and had none of the exclusion criteria. All 309 enrolled respondents were able to finish the interview. No data were missed in the course of data gathering.

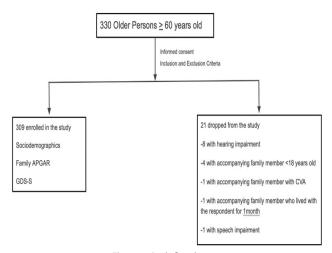


Figure 1. Study flow diagram

The mean age of participants was 69.06 years old. There were more females, composing 61.8% of the population, while male respondents only composed 38.2% of the population. Respondents who belonged to a nuclear family comprised 24.6% of the population and the rest of the 75.4% belonged to an extended type of family (Table 1).

Table 1. Socio-demographic and family characteristics of elderly. (N=309)

Characteristics	Values (n=309)
Mean age <u>+</u> SD, years	69.06 <u>+</u> 6.53
Sex, frequency (%) Female Male	191 (61.8%) 118 (38.2%)
Type of family, frequency (%) Nuclear Extended	76 (24.6%) 233 (75.4%)

The mean GDS-S score is 1.69 (SD=1.83). The frequency of a GDS-S score suggestive of depression is 13.9% where 43 out of 309 respondents showed symptoms of depression (Table 2).

Table 2. Likelihood of depression. (N=309)

Characteristics	Values (n=309)
Means GDS Score ± SD	1.69 <u>+</u> 1.83

With GDS score suggestive of depression, freq (%) 43(13.9%)

The mean family APGAR score is 9.39, where 25 out of 309 respondents or 8.09% of the population exhibited moderate family dysfunction (Table 3).

Table 3. Family function. (N=309)

Characteristics	Values (n=309)	
Mean Family APGAR Score \pm SD	9.39 <u>+</u> 0.84	
Poorly Functional Family APGAR, freq (%)	0 (0)	
Moderately Dysfunctional Family APGAR, freq (%)	25 (8.09)	
Highly Functional Family APGAR	284 (91.91)	

Multiple linear regression analyses, it is revealed that the factors age and sex are statistically associated with family function. Advancing age and the female sex are associated with family dysfunction. The type of family and high GDS-S scores do not affect family function (Table 4).

 $\label{thm:condition} \textbf{Table 4.} \ Association of Socio-demographic factor and likelihood of Elderly depression with family function. (N=309)$

Characteristics	Odds ratio (95% CI)	p-value
Age ≥ 60 years Female sex Extended type of family With GDS score suggestive of depression	0.84 (0.72 to 0.98) 15.31 (1.14 to 205.73) 0.80 (0.07 to 8.86) 0.68 (0.41 to 1.17)	0.026* 0.040* 0.858 0.167

^{*}Statistically significant

Among the three demographic factors considered in this study, age and sex are found to be associated with family function. In this study, advanced age is associated with a lower family APGAR score. This implies that the older an elderly family member of a given family, the higher likelihood of having dysfunction in that family. Among the respondents with dysfunctional families, 88% were females and only 12% were males. Statistically, the female sex among elderly persons is associated with family dysfunction.

The type of family did not show a significantly statistical association with family function. Among the elderly persons that exhibited family dysfunction, roughly 76% belonged to an extended family and 24% belonged to a nuclear family. The same statistics was shown among elderly persons who belonged to families that were functional (family APGAR of 8-10), 75% were under the care of an extended family, and about 25% had a nuclear type of family.

GDS-S score is found to have no statistical association with family function. It was revealed in the study that out of the 25 respondents showing family dysfunction, there were 10 respondents or 40% of them did not show the likelihood of depression. This accounts for only 3.24% of the total population. Fifteen respondents out of the 25 who have family dysfunction had GDS scores (5-6) suggestive of depression, which accounts for 4.85% of the total population.

DISCUSSION

In this study, the mean age of respondents was 69.06 years old. There were more female respondents, who composed 61.8% of the population, while male respondents only composed 38.2% of it. Respondents who belonged to nuclear families comprised 24.6% of the population and the rest of the 75.4% belonged to an extended type of family. In a similar study, mean age was 71.8 years old, and with more females which composed 61.8% of the population. In the same study, it was accounted that 80.48% of the study population were living with family members.⁶

There were 43 out of 309 respondents that showed symptoms of depression, which was 13.9% of the population. This is a much lower percentage compared to a population of Filipino community-dwelling elderly persons in Rizal Province, where it was reported that 26.5% of them showed symptoms suggestive of elderly depression.³

In the elderly population studied, only 8.06% of them reported signs of family dysfunction through the family APGAR tool. This is

a very small percentage in compared to reports of similar studies, such as in a population of older persons in Brazil in which 18.1% had family dysfunction.⁵ In various Filipino populations in the US and the Philippines, more than 26% of families that are dysfunctional have elderly family members.^{3,4} In another study of a population of elderly people in Portugal, it was reported that 44.6% of families that were dysfunctional had family members with the age range of 65-74 years old. Moreover, a higher percentage of family dysfunction of 66.7% was found in families with members aged 75 to 84 years old.¹² However, this elderly population had participants with chronic illness. The presence of chronic illness among the elderly may be the reason for the high incidence of family dysfunction. This study did not examine chronic illness as a possible variable that can contribute to family dysfunction.

In the present population studied, it was found out that age is statistically associated with family APGAR scores. It significantly implies that families with the most aged elderly have higher chances of being dysfunctional. This depicts the struggles of the child-caregiver in the community setting. Demands of aging advance as the elderly continue to get older, such as increased dependence on the caregivers, high costs of medical care, and a decrease in functional capacity. For this reason, a weight of great pressure is put on the caregiver. A work-personal life balance can be difficult when having an older person in the family.¹⁶

Older persons with advanced age and who are community-dwelling are commonly found to be living with one of their married adult children, thus they belong to an extended family. 4,5,10,16 This is true in most parts of Asia including the Philippines. Very few older adults are institutionalized to either a government-run or a private home care facility for the elderly. The demands and pressure that are being carried by the family with older persons are challenging. Advanced age entails a sense of belonging in an extended family. Caregivers of the older persons in extended families may have difficulty in their life balance, which could result in family dysfunction. 14,15,16

The female sex is also significantly associated with family dysfunction. In a community-dwelling elderly population in Brazil, it was found out that there was a higher prevalence of family dysfunction among females than their male counterparts. This is also true in multiple studies in different parts of Latin America. This is also true in multiple studies in different parts of Latin America. This gradies with these findings had no elaboration on attributing factors that may have caused a higher probability of developing a dysfunctional family among families that take care of a female elderly person. Women face a higher risk of self-perceived severe family dysfunction, which can be attributed to the emotional nature of women and their sense of attachment. In finding will help primary care health workers in doing further investigation into the family function of elderly women who seek consultation at a primary care clinic. In effect, the primary care health workers can address problems that may contribute to the difficulty of the family in rendering care to their elderly.

This study revealed that families assessed to have dysfunction and families that are functional both show similar statistics in the proportion composition of extended and nuclear families. It was revealed that 76% of older persons who belonged to dysfunctional families were in an extended type of family set-up while 24% belonged to a nuclear type of family. In the same manner, about 75% of elderly persons who belonged to highly functional families have an extended family and

roughly 25% of them belonged to nuclear families. The outcome of the regression studies on family types with family function demonstrated no statistical significance in the association of these variables. Contrary to the idea that extended families with elderly members have a high chance of showing dysfunction, this study showed no statistical significance in the association of family dysfunction and being a part of an extended family. The stress of having an older person in the family does not affect the good functioning of a family. This may be attributed to the nature of the dynamics of a Filipino family, such that the elderly is often consulted when families make decisions. This attribute of younger family members toward the elderly is an acknowledgement that the older family members are given importance and their opinions are valued. Pagardless of family arrangement, this Filipino family dynamics enable a family to withstand challenges and strengthen the family function.

Statistically, the likelihood of depression as measured through the GDS-S is not associated with family dysfunction. The nature of Filipino family dynamics that is strong and cohesive, which extends to neighbors and intimate non-familial relations with other families, can be the protective wall that prevents family dysfunction among families with elderly members. ^{9,16}

Health protocols of the COVID-19 pandemic when the study was conducted became a limiting factor to getting valuable information that may have been gathered if a face-to-face interview was permitted. Due to the unusual method of data gathering which was new to the respondents, it allowed very limited time during the conversation. This also limited the number of respondents who were enrolled in the study. In the midst of these challenges, this unusual method of gathering data still provided the needed information that enabled the findings of this study to shed light on the objectives of the study.

CONCLUSIONS AND RECOMMENDATIONS

The mean age of the studied older population is 69.06 (SD=6.53) with a female predominance of 61.8%. Among the older persons who participated in the study, 75.4% belong to an extended type of family. The frequency of older persons with a GDS-S score suggestive of depression is 13.9% and family dysfunction is 8.06%. Age and sex have a significant association with family dysfunction in the elderly. Age is inversely associated with family APGAR scores, which implies that the more advanced the age, the higher the chance of developing family dysfunction. The female sex is significantly associated with family dysfunction in older persons.

Marital status as a socio-demographic factor can be a helpful addition to the independent variables. A further in-depth study on a large group of female elderly persons can be helpful in understanding their special needs. The data set of this study showed consistency with multiple studies in Latin America that there is female predominance in the family dysfunction in the elderly population. The determination of factors that associate with their perspective on family dysfunction will be helpful in addressing the problems of the family that can be a contributory factor in surmounting difficulties in rendering a better health care service.

Special populations were not included as a variable in this study, such as elderly persons who have common chronic illnesses like diabetes mellitus and hypertension. Consideration of these populations will help us understand the role of the family in the control of these chronic illnesses. This will also open the idea among primary care physicians on how to approach families with elderly members that have chronic illnesses. It will also be interesting to note if the nature of the Filipino dynamics can buffer the possible destructive effects of families with older persons that have chronic illnesses.

It is important to note that in this study advancing age and the female sex are associated with family dysfunction. In Rural Health Units and Barangay Health Centers, the Family APGAR will be a helpful addition to the assessment of an elderly patient who will seek medical consultation. A timely referral to a family physician for an appropriate intervention can be helpful to increase their quality of life.

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